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(54) COMPOSITE SHEET

(57)Abstract:

PURPOSE: To manufacture a composite sheet composed of two biaxially oriented plastic films or more and hard to generate twist curls at the time of receiving heat history.

CONSTITUTION: The generation of twist curls of a composite sheet composed of two biaxially oriented plastic films or more stuck together is improved by sticking the films of same kind in the same degree of orientation and in the same orientation direction. The sheet can be used as a base of a document for which genuinness is required.

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CLAIMS

[Claim(s)]

[Claim 1] The compound sheet characterized by all biaxial extension plastic film being of the same kind, and sticking the degree and the direction of orientation of orientation identically in the compound sheet which establishes a sheet structure object in the middle two or more sheets and if needed, and stuck biaxial extension plastic film.

[Claim 2] The compound sheet according to claim 1 which the biaxial extension plastic film of two or more sheets is the same thickness, and is 25 micrometers or more.

[Claim 3] The compound sheet according to claim 1 or 2 whose biaxial extension plastic film is polyethylene terephthalate.

[Claim 4] The compound sheet according to claim 1 or 2 whose biaxial extension plastic film is white polyethylene terephthalate.

[Claim 5] electromagnetism which is different from one or more sorts of non-conductive ingredients, and a non-conductive ingredient through adhesives between two biaxial extension plastic film -- claim 1 which comes to prepare the sheet-like structure which uses as an indispensable component the particle which has a property thru/or 4 -- either -- the compound sheet of a publication.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention can be used in a field wide range as a compound sheet which used at least two biaxial extension plastic film, and relates to the compound sheet which can be especially used as a base of documents, such as an alternative of negotiable securities, a PURIPEDO card, a horse race vote ticket, a highway traffic ticket, a parking ticket, a train ticket, a bill, a passport, a credit card, a debenture, and the bank note of a bond and others. Multiple times are covered in more detail, and even if it takes in and out of a reader, it is related with the compound sheet which can be used as a base of a document with Siwa, a camber, and the endurance that is not worn out.

[0002]

[Description of the Prior Art] Conventionally, the compound sheet has been made in order to compound the function of various kinds of sheets to constitute. For example, in food packing relation, since it cannot be satisfied with a single sheet of barrier nature, heat-sealing nature, printing nature, etc., the means of compound has been used. For this reason, most things of compounding the two or more same sheets were not performed,

but the curl by the difference of the heat shrink of a sheet of a different kind was made into the problem.

[0003] On the other hand, for the document which requires the Shinsei **, such as a prepaid card and a credit card, it is the official announcement official report Showa 63-501250 for example, by this applicant for a patent to make a conductive fiber hold on a document as one technique it to be important to have the function which prevents forgery and an alteration, and prevent such forgery and an alteration. The number proposal is made.

[0004] This technique distributes at random the fiber of conductivity [base / of the document which consists of a non-conductive ingredient], and holds it, and records the distribution condition of that conductive fiber on record or external storage with means, such as magnetic recording, on the document. And in checking the Shinsei ** of a document, by irradiating an electromagnetic wave etc. at the document and detecting the reflection or transparency with a detector, the distribution condition of the fiber on a document is detected and it compares with the contents of record which recorded the distribution condition which serves as criteria in the detection result. Since the distribution condition of the fiber on a document becomes inharmonious with the contents of record when processing of forgery, alteration, etc. is added to a document, it can judge that a document or a document base is not Shinsei.

[0005] Applying this technique to formula documents, such as a bank note, a license, and an identification card, is proposed.

[0006]

[Problem(s) to be Solved by the Invention] Although it was a prevention technique over the forgery and alteration which was extremely excellent theoretically, in case this document read recording information, having taken to a reader using a rotation roller was common, and when there were Siwa and a camber at this time, it was not transported into equipment, and had the incorrect-recognized problem. Moreover, multiple-times use was carried out and there was a problem of soiling a migration roller and the incorrect recognition by reading, wearing out by a head etc. and becoming thin, or the head section with wear powder.

[0007] Moreover, although sticking plastic film on both sides of a document is proposed in order to prevent these, generating of the curl which is twisted or is called the twist is lot-to-lot [of lamination], or the cross direction of a roll, and was reducing commodity value remarkably.

[0008] It is made in view of the situation like the above, and is hard to generate Siwa and a camber, and this invention is excellent in abrasion resistance, and offers lot-to-lot or the compound sheet which does not have twist curl in the location of the cross direction of a roll.

[0009]

[Elements of the Invention] In the compound sheet which stuck two or more biaxial extension plastic film, all the biaxial extension plastic film of this invention is of the same kind, and it is a compound sheet characterized by sticking the degree and the direction of orientation of orientation identically.

[0010] furthermore, electromagnetism which is different from one or more sorts of non-conductive ingredients, and a non-conductive ingredient through adhesives in this invention between said two biaxial extension plastic film -- it can consider as the

compound sheet used as the base of the document which requires the Shinsei ** without twist curl by preparing the sheet-like structure which uses as an indispensable component the particle which has a property.

[0011] This invention is explained below at a detail.

[0012] The description of the compound sheet of this invention has biaxial extension plastic film of the same kind in a compound sheet, and is by sticking the degree and the direction of orientation of orientation identically to have prevented generating of twist curl. It becomes remarkable [generating of twist curl], when it is not remarkable and especially a film 25 micrometers or more is used with the film of a thin film, and much more effectiveness of this invention is acquired.

[0013] Generally biaxial extension plastic film has produced molecular orientation inside in response to the effect of the extension at the time of manufacture. Although it is dependent on the extension direction and draw magnification, as for the orientation degree and the direction of orientation of a chain, it is common for it not to be in agreement with these, and to change also with crosswise locations. This phenomenon is measured by means, such as propagation velocity of the rate of optical refraction, and an acoustic wave. Moreover, as a cheap approach, the rate of a heat shrink is measured for many years, and the stacking tendency is guessed.

[0014] Therefore, in sticking the extension plastic film of two or more sheets on arbitration, the degree and the direction of orientation of orientation differ from each other. By receiving the heat histories, such as aging for promoting a lamination and hardening of adhesives, and desiccation at the time of printing and coating after sheet production, the strain relaxation of a chain Since it changes with each films, that to which generating of twist curl has taken place is conjectured, and there is [considering as the same orientation degree and the direction of orientation] effectiveness in prevention of twist curl most. In addition, in order to prevent the above heat histories, the thermal conditions of each process are performed at low temperature, or although the attempt which cuts out a roll immediately after a lamination and performs monotonous aging as the shape of Mr. [**] also occurs, when this compound sheet is used as a final product, in the object for prepaid cards, magnetic coating takes time and effort, or twist curl occurs by the heat test, and it is not an essential amelioration means.

[0015] It is better to stick using the film of the same desirable thickness, since it is difficult for there to be existence of a film with the same orientation degree and the direction of orientation only in the same location of the cross direction of the roll of one film, and to manage the film of varieties with which thickness differs again as a matter of fact, although various kinds of biaxial extension plastic film is also manageable as such an approach using the measuring instrument which measures the above-mentioned stacking tendency.

[0016] If the approach of sticking an orientation degree and the direction of orientation identically using the roll of one film is ** trap ***** about cautions, it is not in the thing which changed with number of the processes to stick and corresponded to it and it rolls back or the inside comrade of a roll or the lamination of an inside and external surface is [a thing] needed.

[0017] The biaxial extension plastic film which can be used in this invention is biaxial oriented films, such as polyethylene, polypropylene, polystyrene, a polyvinylidene chloride, nylon, and polyester. Points, such as dimensional stability and thermal

resistance, to polyethylene terephthalate is desirable.

[0018] Although at least two above-mentioned biaxial extension plastic film is used and the compound sheet of this invention comes to stick it Between two biaxial extension plastic film, although well-known means, such as adhesives, can be used and established, the sheet or film of arbitration different electromagnetism from one or more sorts of non-conductive ingredients, and a non-conductive ingredient in the document which requires the Shinsei ** -- it is desirable to prepare the sheet-like structure which uses as an indispensable component the particle which has a property through adhesives.

[0019] It can obtain by application of a fiber technique, for example, the above-mentioned sheet-like structure is Japanese Patent Publication No. 62-21919. It can obtain by the ingredient and approach which are illustrated by the number official report. That is, one is 0.025mm. The bundle of the following conductive fiber can be dipped during a water-soluble binder-material bath, it can cover and dry by this binder material, and the bundle of fiber can be made, said bundle can be judged so that die length may be set to 0.1-30mm, and it can mix with non-conductive fiber and water, and can obtain paper making and by drying. thus -- although the obtained sheet-like structure can also be used as it is -- one sort of non-conductive fiber -- thermoplastic fiber -- content -- and -- or what raised the reinforcement of the structure for the thermoplastic aqueous binder etc. before paper making mixing and by carrying out paper making and heat-treating a thermoplastic base material, thermal melting arrival, or beforehand may be used.

[0020] When sticking the above-mentioned sheet-like structure with biaxial extension plastic film next, it can be used by well-known approaches, such as a dry laminate technique and an EKUSUTORUJON lamination technique.

[0021] When using the compound sheet of this invention as the base of the document which requires the Shinsei **, it is desirable to have colored it white etc. in order to conceal the pattern of that printing is performed to biaxial extension plastic film and the sheet-like structure. As coloring, they are what scoured the coloring agent to plastic film, the painted thing, etc.

[Example] An example is given below and this invention is explained concretely. The section expresses the weight section among an example.

[0022] It is 50 micrometers like example 1 drawing 1 . From the roll of a white biaxial extension polyethylene terephthalate film, the 10cmx20cm sheet 1 (abcd) of two sheets, 2 (efgh) is obtained and desiccation thickness is urethane system adhesives (Oriental Morton ADOKOTO 506X/CAT- 10= mixture of 100/5 of weight ratios) to the front face of 2 6 mum Spreading desiccation is carried out so that it may become. Aging between 40-degree-C two-day lamination was performed for the rear face of 1, and the front face (it is a pile about the side fg to the side ef and the side ef in the side ab) of 2 at 60 degrees C, and the compound sheet was obtained. Most twist curl was not observed for the obtained compound sheet by viewing.

[0023] Example 2 diameter of 0.008mm 20000 of stainless steel It was immersed in the solution containing polyvinyl alcohol, and the bundle of a book was dried in 100 **. Next, after cutting the bundle in die length of 10mm and stirring a polyethylene fiber and water, the stainless steel fiber content sheet-like structure (thickness: 0.045mm) was obtained by the well-known wet paper manufacture method. In addition, amount of stainless steel fiber It adjusted so that it might become 0.7 g/m². Next, it is polyethylene 15micrometer to both sides of the above-mentioned sheet-like structure. Extrusion KOCHIINGU was

carried out.

[0024] On the other hand, it is 50 micrometers. One roll A of a white biaxial extension polyethylene terephthalate film was prepared, and the roll B which the same die length as the die length of A which remained so that an inside might turn into an inside in a flow direction rewind was made.

[0025] Next, desiccation thickness is urethane system adhesives (Oriental Morton ADOKOTO 506X/CAT- 10= mixture of 100/5 of weight ratios) to the inside of Roll A 6 μm Carrying out spreading desiccation so that it may become, to both sides of the above-mentioned sheet-like structure, the sheet which carried out the coat of the polyethylene was stuck, and was rolled round at 60 degrees C, and Roll C was obtained.

[0026] It is lamination, rolling up, and 40 degree-C2 at 60 degrees C so that an adhesives layer and the polyethylene layer of Roll C may face the external surface of Roll B, carrying out spreading desiccation of the above-mentioned adhesives similarly. Aging during a day was performed and the compound sheet was obtained.

[0027] The roll of the obtained compound sheet to 100mm x200mm When the card was cut off so that a longitudinal direction might be in agreement with the flow direction of a roll, most twist curl was not observed by viewing.

[0028] It is 50 micrometers like example of comparison 1 drawing 1 . From the roll of a white biaxial extension polyethylene terephthalate film, the 10cmx20cm sheet 3 (ijkl) of two sheets, 4 (mnop) is obtained and desiccation thickness is urethane system adhesives (Oriental Morton ADOKOTO 506X/CAT- 10= mixture of 100/5 of weight ratios) to the front face of 4 6 μm Spreading desiccation is carried out so that it may become. Aging between 40-degree-C two-day lamination was performed for the rear face of 3, and the front face (it is a pile about the side pm to the side op and the side ij in the side ij) of 4 at 60 degrees C, and the compound sheet was obtained. Twist curl had generated the obtained compound sheet by viewing.

[0029] The compound sheet was similarly obtained using the sheet-like structure and Rolls A and B of example of comparison 2 example 2 which carried out the polyethylene coat except having applied adhesives to the inside of Roll B.

[0030] When the card was cut off like the example 2, it was what cannot be used as a base for documents which big twist curl is observed by viewing and requires the Shinsei **.

[0031] The compound sheet was obtained like the example 2 except having applied adhesives to the external surface of lamination, rolling up, and the remaining roll A for the moiety of the flow direction of the sheet-like structure in which example of comparison 2 example 2 carried out the polyethylene coat, and Roll A like the example 2.

[0032] When the card was cut off like the example 2, it was what cannot be used as a base for documents which big twist curl is observed by viewing and requires the Shinsei **.

[0033] The compound sheet was similarly obtained except having applied adhesives to the inside of the roll A which remained in the example 2 of example of comparison 3 comparison.

[0034] When the card was cut off like the example 2, it was what cannot be used as a base for documents which big twist curl is observed by viewing and requires the Shinsei **.

[0035]

[Effect of the Invention] In this invention, since the degree and the direction of orientation of orientation of biaxial extension plastic film were stuck identically, by obtaining the compound sheet which twist curl cannot generate easily, even if it receives the heat history after a production process or manufacture, and preparing the sheet-like structure into a compound sheet further, it can be used as a base of the document which requires the Shinsei **, and the existing compound sheet of abrasion resistance came to be obtained.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[0036]

[Drawing 1]

[0037] Drawing 1 is the explanatory view showing the sheets 1, 2, 3, and 4 cut down from a biaxial extension plastic film sheet.

[Description of Notations]

1 Logging Sheet 1

2 Logging Sheet 2

3 Logging Sheet 3

4 Logging Sheet 4
